

A NEW SPECIES OF *GLOSSOLEPIS* (PISCES: MELANOTAENIIDAE)
FROM FRESH WATERS OF PAPUA NEW GUINEA

GERALD R. ALLEN*

ABSTRACT

A new species of rainbowfish (Melanotaeniidae) belonging to the genus *Glossolepis* Weber is described from seven specimens from the Omsis River, a tributary of the Markham River near Lae, Papua New Guinea. *Glossolepis maculosus* sp. nov. differs from all other members of the genus on the basis of a combination of features which include colour pattern, a remarkably small size, reduced scalation, and a low number of gill rakers on the first branchial arch.

INTRODUCTION

The rainbowfishes of the family Melanotaeniidae are inhabitants of fresh and brackish waters of New Guinea and Australia. The group contains 47 known species, but future discoveries will no doubt increase this total. Fieldwork by the author over the past six years has resulted in the collection of 13 undescribed species and an additional six new species have surfaced in various museum collections. The most fertile area for new discoveries would appear to be the little explored interior of Irian Jaya (West New Guinea). The family is divisible into seven genera which were reviewed by Allen (1980).

The present paper describes a new species of *Glossolepis* Weber collected by the author near Lae, Papua New Guinea during September 1980. Methods of counting and measuring follow those explained in Allen and Cross (1980). Counts and measurements are summarized in Tables 1 and 2. Data in parenthesis indicate the range for paratypes when differing from the holotype.

TABLE 1

Fin-ray counts for type specimens of *Glossolepis maculosus*.

First dorsal fin spines	Second dorsal fin soft rays										
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V	VI										
4	4										
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5	3										
Anal fin soft rays	Pectoral fin rays										
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18	19	20									
3	4	1									
12	13										
6	2										

* Department of Ichthyology, Western Australian Museum, Francis Street, Perth, Western Australia 6000.

Proportional measurements are presented as percentage of the standard length. These data are based on the holotype and 5 paratypes, 36.3-46.6 mm SL, unless stated otherwise. Type specimens are deposited at the Kanudi Fisheries Laboratory, Port Moresby, New Guinea (PNG); and the Western Australian Museum, Perth (WAM).

TABLE 2

Comparison of selected counts for species of *Glossolepis*.

	Gill rakers lower limb of first arch	Horizontal scale rows	Vertical scale rows	Predorsal scales	Total scales on preopercle- suborbital
<i>incisus</i>	26-32	16-20	50-60	30-36	26-38
<i>maculosus</i>	13-14	10	34-36	17-20	11-14
<i>multisquamatus</i>	19-23	12-16	38-43	24-31	20-26
<i>pseudoincisus</i>	26-30	12-16	38-43	27-34	21-29
<i>wanamensis</i>	19-23	15-17	39-44	23-35	21-30

SYSTEMATICS

Glossolepis maculosus sp. nov.

Fig. 1

Holotype

WAM P26976-001, male 46.2 mm SL, small tributary of Omsis River about 22 km west of Lae, Markham River System, Papua New Guinea (approximately 6°42'S, 146°47.5'E), seine net, G. Allen and B. Crockford, 27 September 1980.

Paratypes

PNG unregistered, 3 specimens, 36.3-42.2 mm SL, collected with holotype; WAM P26976-004, 3 specimens, 24.2-43.8 mm SL, collected with holotype; WAM P26976-003, 46.6 mm SL, collected from small side channel of Omsis River about 300 m upstream of type locality, seine net, G. Allen, B. Crockford, and B. Parkinson, 26 September 1980.

Diagnosis

A species of *Glossolepis* with the following combination of characters: dorsal rays V or VI-I,9 or 10; anal rays I,18 to 20; pectoral rays 12 or 13; horizontal scale rows 10; vertical scale rows 34 to 36; predorsal scales 17 to 20; preopercle-suborbital scales 11 to 14; gill rakers on first arch 2 or 3 + 13 or 14; colour generally brownish on upper half, white on lower half with series of 6-8 large dark spots along middle of sides.

Description

Dorsal rays VI-I,9 (V or VI-I,9 or 10); anal rays I,19 (I,18 to 20); pectoral rays 12 (12 or 13); horizontal scale rows 10; vertical scale rows 36 (34 to 36); predorsal scales 18 (17 to 20) (av. 16, N = 8); peropercle scales 14 (11 to 14) (av. 12, N = 8); gill rakers on first arch 2 + 13 (2 or 3 + 13 or 14).

Greatest body depth of holotype 30.7, greatest depth of paratypes by sex and size class as follows: *males* — (a) 35-40 mm SL, 27.5 (N = 1), (b) 41-47 mm SL, 28.9-30.7 (av. 29.8, N = 2); *females* — (a) 24-34 mm SL, 23.1-23.2 (av. 23.2, N = 2), (b) 35-40 mm SL, 26.4 (N = 1), (c) 41-47 mm SL, 28.5 (N = 1); head length 26.0 (25.5-27.3); snout length 6.9 (6.2-7.2); eye diameter 8.9 (8.6-10.1); interorbital width 8.2 (8.2-8.7); caudal peduncle depth 10.0 (9.1-10.2); caudal peduncle length 16.7 (15.7-19.1); predorsal distance 48.1 (46.6-50.6); preanal distance 48.1 (46.0-50.4); prepelvic distance 37.0 (35.8-37.9).

Jaws (Fig. 2) about equal, oblique, premaxilla without an abrupt bend between the anterior horizontal portion and lateral part; maxilla ends well forward of anterior edge of eye; lips thin except median portion of upper lip bulbous; teeth conical with slightly curved tips, those in outer row stouter; teeth in upper jaw arranged in 2 to 3 rows anteriorly, reduced to a single row posteriorly; teeth at front of lower jaw in 4 or 5 rows, tapering to a single row posteriorly; teeth of upper jaw and middle portion of lower jaw extending outside of mouth onto lip; vomer with a row of small, conical teeth (difficult to detect even under high magnification); palatines edentulous.

Scales relatively large, arranged in regular horizontal rows; body scales with slightly crenulate margins (Fig. 2); predorsal scales extending to posterior portion of interorbital; a single scale row on preopercle with 1-2 additional scales below posterior corner of eye.

First dorsal fin originates about opposite of anal fin origin; first dorsal spine is slightly (in females) to distinctly (in males) shorter than longest (usually third) spine; longest spine of first dorsal fin 21.6 (12.6-18.2), its tip reaching base of second or third soft ray of second dorsal fin in males and falling just short of second dorsal fin origin in females when depressed. Longest (usually first) soft ray of second dorsal fin 13.9 (14.2-16.0); depressed posterior rays of second dorsal fin extends back about one-third length of caudal peduncle in females and one-half length of caudal peduncle or more in males. Longest anal rays (middle rays in females, most rays uniform in males) 12.6 (10.7-16.3). Soft dorsal and anal fin rectangular in outline, the posterior rays somewhat elongate and pointed in males. Pelvic fin tips when depressed just reaching base of anal spine in females and extending to base of first or second soft anal ray in males; length of pelvic fin 14.9 (13.5-15.7). Pectoral fins pointed, the length 18.8 (15.7-18.3). Caudal fin moderately forked, its length 22.3 (18.7-22.3).

Colour in alcohol: brownish on upper half with slightly lighter scale centres; silvery or whitish on lower half; a row of 7-8 irregularly spaced spots (pupil size or smaller) along middle of side; fins dusky.

Colour in life: brownish-green dorsally grading to silvery-white on ventral half; lower portion of side with yellow suffusion posteriorly; spots along middle of side bluish-black; fins mainly translucent or slightly dusky; second

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dorsal fin yellowish basally and anal fin with broad median band of yellow. The yellow coloration of the fins and body is more pronounced in males.

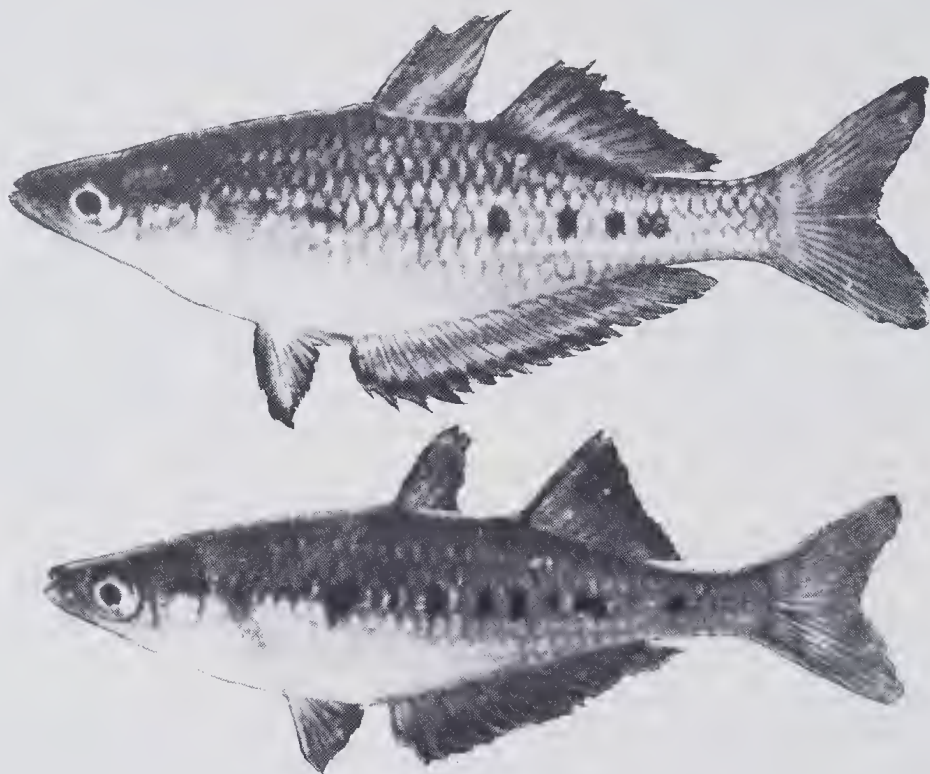


Fig. 1: *Glossolepis maculosus*, male holotype (upper), 46.2 mm SL and female paratype, 42.2 mm SL.

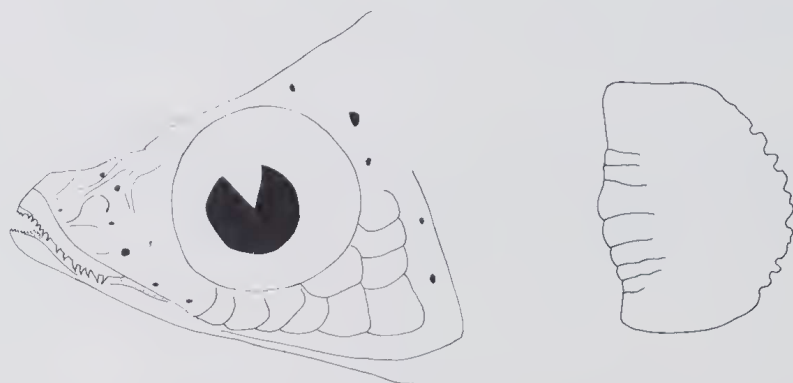


Fig. 2: Camera lucida drawings of head of holotype and body scale ($\times 250$, removed three scale rows below base of first dorsal fin). The crenulations on the posterior (right) margin of the scale are less distinct than in other *Glossolepis* (see Fig. 12, A-C, in Allen 1980).

Comparisons

The genus *Glossolepis* contains five species which are restricted to northern New Guinea between the drainage systems of the Markham and Mamberamo Rivers. All except *G. multisquamatus*, from the Sepik and Mamberamo, appear to have extremely limited distributions. *Glossolepis incisus* is known only from Lake Sentani near the Irian Jaya capital of Jayapura, and approximately 30 km west of the single collection site for *G. pseudoincisus* on the Tami River. *Glossolepis wanamensis* is known only from Lake Wanam, about 25 km west of Lae and just 5 km from the Omsis River where *G. maculosus* is found.

The diagnostic features of the genus *Glossolepis* were discussed in detail by Allen (1980), Allen and Cross (1980), and Allen and Kailola (1979).

Glossolepis maculosus exhibits crenulate scale margins and a small premaxillary with relatively few teeth, both typical features of the genus. However, it is noticeably aberrant compared to other *Glossolepis* with regard to its reduced number of gill rakers and scales. These differences are indicated in Table 2. The colour pattern of this species is very different to that of other *Glossolepis*, and although the sample size is small it appears to attain a very small size, only about 50 mm SL, compared with 80-115 mm SL for the other species.

Distribution

The species is known only from the type locality, a small stream flowing into the Omsis River about 500 m upstream from the Tablebirds Poultry Farm. This locality is situated about 22 km west of Lae. The Omsis is a tributary of the Markham River.

Habitat

All but one of the types were collected from a small, clear, slow flowing creek. The width ranged from about 0.5 to 3.0 m, and the depth from about 10 to 70 cm. The stream was bordered by tall grass and occasional patches of rainforest. The types were taken from a narrow (1.5 m) section containing a dense cover of aquatic vegetation. A pH of 7.8 and temperature of 25.0°C were recorded. The site is situated about 50 m upstream from the Omsis River. The remaining type was taken from a small side channel in the main stream-bed of the Omsis River. A number of seine hauls in the main river yielded two other rainbowfishes, *Melanotaenia affinis* (Weber) and *Chilatherina campsi* (Whitley). The type locality stream was also inhabited by these species, although they frequented the deeper sections in contrast to *G. maculosus*.

Remarks

The smallest gravid female among the type series is 36.7 mm SL.

The species is named *maculosus* (Latin: spotted) with reference to the colour pattern.

ACKNOWLEDGEMENTS

Special thanks are due B. Parkinson of Rabaul, Papua New Guinea and B. Crockford of Melbourne. Mr Parkinson accompanied the author throughout the 1980 visit and his assistance was instrumental to the success of the expedition. Mr Crockford is responsible for informing the author about the existence of *G. maculosus* prior to the 1980 New Guinea visit and kindly joined the expedition at Lae to assist with the capture of specimens. Dr H. Axelrod of T.F.H. Publications (U.S.A.) generously donated travel funds. Accommodation was provided by L. and J. Crossfield of Port Moresby, and J. Gollan and Ron Wilson of Lae. D. Dunham and N. Serafini assisted with the shipment of live specimens. Collection and exportation permits were provided by the Wildlife Division, Department of Lands and Environment, Government of Papua New Guinea under the auspices of N. Kwapena, First Assistant Director. Finally I thank C. Allen for her careful preparation of the typescript.

REFERENCES

- ALLEN, G.R. (1980). A generic classification of the rainbowfishes (Melanotaeniidae). *Rec. West. Aust. Mus.* 8 (3): 449-490.
- ALLEN, G.R. and CROSS, N.J. (1980). Descriptions of five new rainbowfishes (Melanotaeniidae) from New Guinea. *Rec. West. Aust. Mus.* 8 (3): 377-396.
- ALLEN, G.R. and KAILOLA, P.J. (1979). *Glossolepis wanamensis*, a new species of freshwater rainbowfish (Melanotaeniidae) from New Guinea. *Rev. fr. Aquariol.* 6 (2): 39-44.